AMENDMENTS TO THE CLAIMS

Please append the following claims to the list of the currently-pending claims:

11. A method of compressing a data signal, using a chaotic system, comprising:
    a. causing the chaotic system to assume a periodic orbit;
    b. generating a periodic waveform for the periodic orbit;
    c. weighting the periodic waveform to approximate at least a portion of the data signal; and
    d. merging at least one initialization code and a representation of the weighting, to compress the portion of the data signal.

12. The method of claim 11, including stabilizing the periodic orbit.

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13. The method of claim 11, including:
    a. identifying a trend in the portion of the data signal; and
    b. removing the trend from the portion of the data signal.

14. The method of claim 13, wherein identifying the trend includes determining a mathematical model for the trend.

15. The method of claim 13, including merging
    a. a representation of the trend,
    b. the at least one initialization code, and
    c. the representation of the weighting,

    to compress the portion of the data signal.

16. The method of claim 0, wherein the data signal comprises image data.

17. The method of claim 0, wherein the data signal comprises audio and image data.

18. A method of compressing a data signal, using a chaotic system, comprising:
    a. causing the chaotic system to assume a plurality of periodic orbits;

b. generating a periodic waveform for each of a subset of the periodic orbits;
c. weighting a subset of the generated periodic waveforms to approximate at least a portion of the data signal; and
d. merging at least one initialization code and information representative of the weighting, to compress the portion of the data signal.

19. The method of claim 18, including assigning a zero weight to at least one of the subset of generated periodic waveforms.

20. A method of compressing a data signal, using a chaotic system, comprising:
a. causing the chaotic system to assume a plurality of periodic orbits;
b. generating a periodic waveform for each of the periodic orbits;
c. weighting the periodic waveforms to approximate the data signal; and
d. merging at least one initialization code and information representative of the weighting, to compress the data signal.

21. A method of compressing a data signal, using a chaotic system, comprising:
a. causing the chaotic system to assume at least one periodic orbit by applying at least one initialization code to the chaotic system;
b. generating a periodic waveform for each of a subset of the at least one periodic orbit;
c. weighting a subset of the generated periodic waveforms to approximate at least a portion of the data signal; and
d. merging the at least one initialization code and information representative of the weighting, to compress the data signal.

22. A method of compressing a data signal, using a chaotic system, comprising:
a. causing the chaotic system to assume a periodic orbit;
b. generating a periodic waveform for the periodic orbit;
c. weighting the periodic waveform to approximate a first portion of the data signal;

d. identifying a correlation between data in the first portion of the data signal and data in at least one other portion of the data signal;
e. merging at least one initialization code, a representation of the weighting, and a representation of the correlation, to represent the first portion of the data signal and the at least one other portion of the data signal, to compress the data signal.

23. A method of decompressing a compressed representation of a first data signal, the compressed representation produced using a first chaotic system, comprising:
a. causing a second chaotic system, substantially identical to the first chaotic system, to assume a predetermined periodic orbit;
b. generating a periodic waveform for the periodic orbit; and
c. applying a predetermined weighting to the periodic waveform to produce at least a portion of a second data signal substantially identical to at least a portion of the first data signal.

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24. The method of claim 23, including stabilizing the periodic orbit.

25. The method of claim 23, wherein the compressed representation includes trend information for the at least a portion of the first data signal.

26. The method of claim 25, including applying the trend information to the at least a portion of the second data signal, to substantially reproduce the at least a portion of the first data signal.

27. The method of claim 25, wherein the trend information includes a mathematical model of the trend.

28. The method of claim 23, wherein the data signal comprises image data.

29. The method of claim 23, wherein the data signal comprises audio and image data.

30. A method of decompressing a compressed representation of a first data signal, the compressed representation produced using a first chaotic system, comprising:
    a. causing a second chaotic system, substantially identical to the first chaotic system, to assume at least one predetermined periodic orbit;
    b. generating a predetermined periodic waveform for each of a subset of the at least one predetermined periodic orbit; and
    c. applying a predetermined weighting to at least one generated predetermined periodic waveform to produce at least a portion of a second data signal substantially identical to at least a portion of the first data signal.

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31. A method of decompressing a compressed representation of a first data signal, the compressed representation produced using a first chaotic system, comprising:
    a. causing a second chaotic system, substantially identical to the first chaotic system, to assume a plurality of predetermined periodic orbits;
    b. generating a predetermined periodic waveform for each of a subset of the predetermined periodic orbits; and
    c. applying a predetermined weighting to at least one generated periodic waveform to produce at least a portion of a second data signal substantially identical to at least a portion of the first data signal.

32. A method of decompressing a compressed representation of a first data signal, the compressed representation produced using a first chaotic system, comprising:
    a. causing a second chaotic system, substantially identical to the first chaotic system, to assume a predetermined periodic orbit;
    b. generating a periodic waveform for the periodic orbit;
    c. applying a predetermined weighting to the periodic waveform to produce a first portion of a second data signal substantially identical to a first portion of the first data signal; and
    d. applying, to the first portion of the second data signal, a predetermined correlation between data in the first portion of the first data signal and data in at least one other portion of the first data signal, to produce at least one other

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portion of the second data signal substantially identical to the at least one other portion of the first data signal.